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Increasing Physical Activity in Children and Adolescents During the COVID-19 Pandemic

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Abstract

Exercise benefits physical and mental health, prevents chronic disease, and improves overall quality of life. Most children and adolescents do not meet daily physical activity recommendations (Child and Adolescent Health Measurement Initiative, 2019). The COVID-19 pandemic created large barriers for engagement in exercise and further decreased levels of activity in this population (Dunton et al., 2020; Moore et al., 2020; Sekulic et al., 2020). This project evaluates the effects of the COVID-19 pandemic on physical activity in youth 8-17 years old. An exercise journal increased activity in all participants and promoted attention to daily activity. Overall activity and participation in organized sports decreased after the pandemic, but there was an increase in biking and walking outside. This project highlights the importance of routinely assessing physical activity in pediatric primary care. Providers must educate their patients about exercise and encourage innovative healthy behaviors that can be performed safely during a pandemic.

Keywords: physical activity, exercise, pandemic, pediatrics, primary care

Increasing Physical Activity in Children and Adolescents During the COVID-19 Pandemic

Physical activity (PA) is defined as "any bodily movement that is produced by the contraction of skeletal muscle and that substantially increases energy expenditure" (National Center for Health Statistics [NCHS], 2017, para. 8). Exercise is a type of PA, done purposefully to "maintain or improve one or more components of physical fitness" (NCHS, 2017, para. 1). For this project, PA and exercise are used interchangeably.

The Physical Activity Guidelines for Americans states, "children and adolescents ages 6 through 17 years should do 60 minutes (1 hour) or more of moderate-to-vigorous physical activity daily" (U.S. Department of Health and Human Services [HHS], 2018, p. 8). Organizations such as the American Academy of Pediatrics (AAP) and the World Health Organization (WHO) support these guidelines. Unfortunately, most youth in our nation do not meet daily recommendations for PA. Data from the 2018-2019 National Survey of Children's Health shows that only 22% of children 6-17 years old exercised for 60 minutes every day. (Child and Adolescent Health Measurement Initiative, 2019, Table 1). Results from the 2017 Youth Risk Behavior Survey found 15% of high school students did not get 60 minutes of activity on any day in the previous week (Kann et al., 2018, Table 203).

PA is important for people of all ages and provides short- and long-term benefits for physical and mental health. The WHO (2020a) estimates "that between four and five million deaths per year could be averted if the global population was more active" (p. 25). In children and adolescents, specific benefits of PA include healthy body weight, cardiorespiratory fitness, bone health, decreased depression, and improved cognitive functioning. PA reduces the risk of developing chronic illnesses such as heart disease, diabetes, and cancer (HHS, 2008**,** pp. 7-9;

WHO, 2020a, p. 11). The social aspects of organized sports and group free play are important for childhood development and well-being.

COVID-19 and Physical Activity

In early 2020, scientists identified the novel coronavirus (SARS-Cov-2) after a cluster of atypical pneumonia cases in Wuhan, China. The disease caused by SARS-CoV-2 was named coronavirus disease (COVID-19), and the WHO declared the COVID-19 pandemic on March 11, 2020. (WHO, 2020b, "31 Dec 2019-11 March 2020" section). As of April 29, 2021, "globally . . . there have been 149,216,984 confirmed cases of COVID-19, including 3,144,028 deaths, reported to WHO" (WHO, 2021, COVID-19 Dashboard).

The COVID-19 pandemic restructured the lives of children and adolescents worldwide. Social distancing, school closures, and stay-at-home orders helped mitigate the spread of COVID-19 but created large barriers for engagement in daily exercise. Studies from around the world confirm the pandemic decreased PA and increased sedentary time in children and adolescents (Dunton et al., 2020; Moore et al., 2020; Sekulic et al., 2020). A study by Moore et al., found that during COVID-19 restrictions the percent of children meeting activity guidelines was 4.8% for 5-11-year-old children, and only 0.6% for 12-17-year-old youth (p. 4).

It is notable to mention COVID-19 negatively affected the mental health of children and adolescents. Multiple countries reported symptoms such as irritability, depression, anxiety, and regression in youth due to the pandemic (Imran et al., 2020; Nearchou et al., 2020). The increase in psychological symptoms coupled with a decrease in positive mental health influencers—such as PA, socialization in organized sports, and interactions with coaches or teachers, is devastating for the well-being of children and adolescents (Nearchou et al., 2020).

A study in Southern Croatia by Sekulic et al. (2020) measured anthropometrics and fitness status along with PA levels. Fitness abilities (i.e., aerobic capacity, core strength) decreased only months after lockdowns were in place. The research concluded those with higher levels of physical fitness prior to COVID-19 maintained higher levels of PA during lockdown. This study emphasizes the importance of physical literacy, the foundation of PA and a concept that ensures continuation of PA during a pandemic or comparable situation (Sekulic et al., 2020).

The Importance of Physical Literacy

As defined by the Aspen Institute (2015), "physical literacy is the ability, confidence, and desire to be physically active for life" (p. 9). This multicomponent concept stresses the importance of teaching children movement fundamentals at an early age, so PA becomes enjoyable, second nature, and persists into adulthood. Pediatric primary care providers should assess motor development, teach age-appropriate movement skills, and use encouragement to facilitate a positive mindset about PA (Aspen Institute, 2015).

If the sedentary behaviors developed during the pandemic persist in children and adolescents, the health of this population will suffer. Annual health care costs related to physical inactivity in the U.S. are roughly $117 billion dollars (HHS, 2018, p. 2). If we invest in physical literacy now, we will see cost savings in the future. If we do not reverse current PA levels and sedentary habits, there will be increasing numbers of premature mortality, chronic conditions, and billions of dollars in health care expenditures related to inactivity.

Assessment and Counseling of Physical Activity in the Primary Care Setting

The AAP strongly endorses PA assessment, and counseling in pediatric primary care (AAP, 2020). The U.S. Preventive Services Task Force (USPSTF) recommends screening children older than 6 years for obesity and promoting healthy weight (U.S. Preventive Services

Task Force [USPSTF], 2017). In children with obesity, the USPTSF concluded assessment and intervention for excess weight in children and adolescents has low to minimal risk and provides moderate net benefit (USPSTF, 2017).

There is strong evidence that provider counseling increases physical activity in adults (AAP, 2020, p. 6). Proven strategies to increase PA in children and adolescents primarily focus on children with obesity and in settings other than healthcare (i.e., school-based or child-care based) however, strategies such as family engagement, motivational interviewing, and health-related homework programs are effective (Duncan et al., 2019; Messing, et al., 2019; USPSTF, 2017). The USPSTF found multicomponent intensive behavioral interventions, which included goal setting, motivational interviewing, and self-monitoring resulted in weight loss in children with obesity. (USPSTF, 2017, p. 2419-2420). The 2018 Physical Activity Guidelines Advisory Committee suggests counseling, motivational interviewing, encouragement, or a specific exercise prescription to increase PA (HHS, 2018).

Most studied interventions in children are not solely focused on PA, but are provided in combination with other health behaviors such as healthy diet. This brings to light an important concept; PA is just one component of multiple health maintenance activities that are important in children and adolescents. PA, diet, sleep, screen time, and sedentary time go hand in hand with PA, and should all be included in the counseling of pediatric patients.

Assessment and Counseling Limitations

In 2019, an assessment of outpatient visits with primary care providers by the National Committee for Quality Assurance found only 60% of visits included counseling for PA in children 3-17 years old (National Committee for Quality Assurance, n.d., “Counseling for Physical Activity” section). This data is only a snapshot of our healthcare system but speculates

there is inadequate assessment of PA in pediatric primary care. Barriers for the primary care provider may include time constrains and lack of PA assessment tools in electronic charting systems.

Another issue in assessment of PA in children and adolescents is finding a valid and reliable tool. Subjective measures such as a self-report instrument are inexpensive and easy to administer but are prone to recall bias. Self-reporting is problematic in youth due to variable activity patterns and difficulty with recall. Despite the cons of self-report instruments, they may be beneficial in teaching children and adolescent basic principles about PA and facilitate discussion with providers. One of the most widely used instruments is the Physical Activity Questionnaire for Children, but there is conflicting evidence of its accuracy when compared to objective measurement tools (Lobelo et al., 2020; Marasso et al., 2021; Radman et al., 2021).

Briefly, examples of objective measurement tools include pedometers and accelerometers. These are more expensive than subjective measures and come with their own reliability and validity concerns. Assessment of PA in children and adolescents must consider the pros and cons of measurement techniques and use them carefully as a starting point to guide counseling and assess activity patterns over time.

Purpose

The aims of this project were to: (a) evaluate the impact of the COVID-19 pandemic on PA in children and adolescents, (b) facilitate PA assessment and counseling in the pediatric primary care setting, and (c) increase or maintain levels of PA in participants.

Methods

Literature Review

A review of literature was completed using the following search engines: PubMed and Cochrane Database of Systematic Reviews, with the keywords ‘adolescent exercise’, ‘pediatric exercise’, ‘pediatric physical activity’, ‘child adolescent exercise screening’, ‘children physical activity’, ‘physical activity self-report’, ‘effects of COVID-19 pandemic on children and adolescents’ utilized with each search engine. Articles were ranked using the Johns Hopkins evidence levels and a quality guide tool. Guidelines were assessed for quality using the AGREE II instrument.

Sample

This evidence-based project took place in Southern California at a small private clinic specializing in pediatric primary care. After internal review board exemption from the University of San Diego, participants were recruited using convenience sampling. Inclusion criteria included the following: (a) 8-17 years of age; and (b) appointments for routine well-child exam or immunizations. The age range was selected to ensure the reading level of the project tools were appropriate for all participants. Sick visits were excluded due to time constraints of the visits and potential difficulties for patients to fully take part in discussion and PA during acute illness. The study consisted of four female participants and nine male participants.

Measures

A self-report instrument (see Figure 1) was created to compare three periods of PA: (a) pre-pandemic, during summer/fall 2019; (b) spring 2020, after the stay-at-home mandate in San Diego, CA; and (c) current activity, during the last 7 days. Data collection took place in October and November 2020. The questionnaire asked about PA in organized sports, biking/walking

outside, and moderate/vigorous activity over seven days. Open ended questions inquired about new activities the participant and their family did to exercise since the pandemic. Multiple choice questions asked about perceived level of PA since the COVID-19 pandemic and interest in learning more about PA.

An exercise journal was created to promote physical literacy and increase PA. The journal included a place to log daily activity for one week. An excerpt from the journal is noted in Figure 2. Other questions within the journal inquired about new activities, helpfulness of the journal, and new knowledge obtained from participating. The full versions of the self-report instrument and exercise journal can be found in Appendix A.

Interventions

After explanation of the project, participants filled out the self-report instrument in the waiting room before their visit. The provider reviewed the answers with participants and their families—facilitating discussion about the importance of PA and emphasizing recommended activity guidelines. The provider promoted exercise and created short-term goals with participants. Family participation was encouraged, so any parents and siblings present were actively included in the discussion.

Lastly, each participant received the exercise journal with a stamped envelope to return to the clinic upon completion. The journal was filled out for seven consecutive days at any point within the next month, and upon receipt of the journal participants entered a $25 Amazon gift card raffle. The provider emphasized accumulating small bouts of activity throughout the day, versus worrying about 60 minutes of exercise all in one session.

Results

The percentage of participants meeting daily activity recommendations (≥60 minutes or more/day in 7 consecutive days) before the pandemic was 69%. This number decreased to 31% spring 2020 and increased slightly to 38% by fall 2020 (see Figure 3). 85% of participants perceived their PA decreased due to the pandemic. In the group that completed an exercise journal, 50% met daily activity recommendations.

As shown in Figure 4, all participants increased PA during completion of the exercise journal compared to the previous period (fall 2020). Three out of four children increased activity to levels higher than pre-pandemic. One parent discussed at length how the journal helped increase mindfulness to daily activity, and 75% said the journal helped reach daily activity goals.

For each period, total minutes of weekly activity in organized sports and biking/walking were combined. Figure 5 shows activity in organized sports, which decreased by 84% in spring 2020 compared to pre-pandemic. Figure 6 shows activity in biking/walking, which decreased 15% spring 2020 but increased 63% by fall 2020. The average time spent in both organized sports and biking/walking was 43 min/day pre-pandemic, 19 min/day spring 2020, and 42 min/day fall 2020.

Discussion

Conclusion

The project sample exceeded the national average in meeting recommended daily activity guidelines. Overall activity levels decreased during the COVID-19 pandemic but began to increase by fall 2020. The focus switched from organized sports to biking and walking. By replacing time spent in organized sports with biking and walking, the total minutes spent in these activities combined were essentially unchanged from pre-pandemic to fall 2020. An exercise

journal is a low cost, easy to administer tool that increased PA, adherence to guidelines, and attention to daily activity. Provider counseling, an important aspect of this evidence-based project, likely had positive influence on activity.

Limitations

Due to time constraints, more participants were unable to be obtained, therefore results are not generalizable due to the small sample size. The project took place in a warm climate, which may have given participants more access to outdoor activities during the pandemic versus more northern areas of the country. Patient counseling was brief due to time constraints and patient flow. The self-report instrument was not psychometrically validated and only four participants returned the exercise journal despite follow up from the provider.

Implications for Future Practice

Exercise is important for physical and mental health. The impact of the COVID-19 pandemic on PA levels is important to address during pediatric primary care visits. Primary care providers must facilitate innovative healthy behaviors that can be performed safely during a pandemic. With proper education a balance between health promotion and disease prevention is attainable.

Providers serve as important advocates and role models to increase PA. Verbal education, supportive discussion, and an exercise journal increase adherence to PA guidelines. Ensure other health maintenance activities such as screen time, sleep, and diet are included in counseling. Consider using tools such as an exercise journal or exercise prescription to increase activity.

Promotion of physical literacy is even more important during a pandemic, to ensure children and adolescents continue healthy behaviors that will last a lifetime. Consider additional

barriers to PA, such as children with chronic illnesses, lack of parks or access to technology, unsafe outdoor environments for PA, or cultural differences in activity levels.

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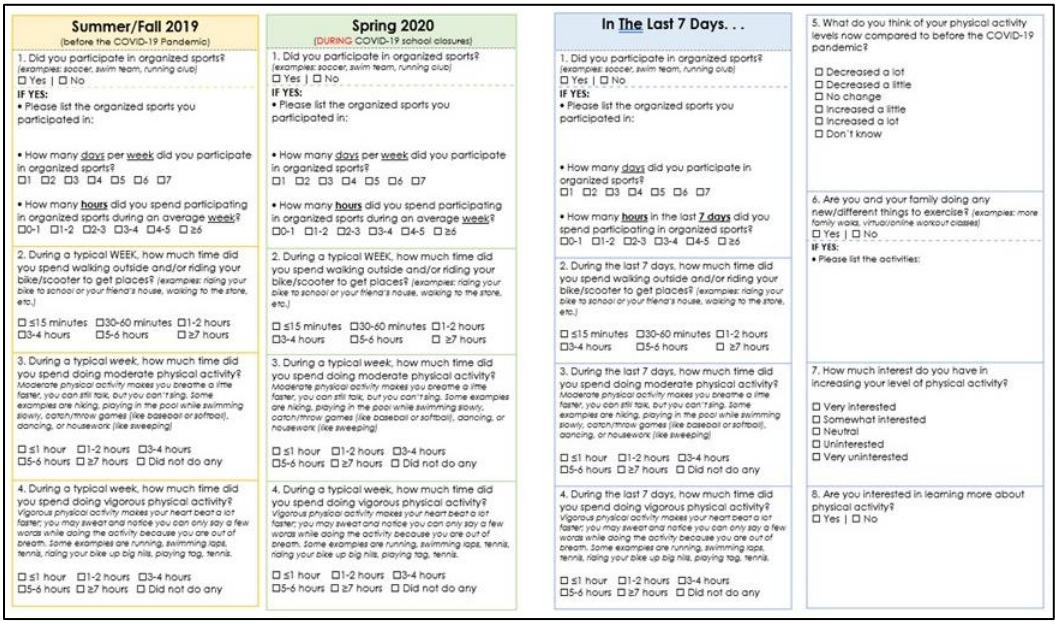
Figures

Figure 1

Self-Report Instrument



Summer/Fall 2019
(before the COVID-19 Pandemic)

1. Did you participate in organized sports?
(examples: soccer, swim team, running club)
☐ Yes | ☐ No
IF YES:
• Please list the organized sports you participated in:

• How many days per week did you participate in organized sports?
☐1 ☐2 ☐3 ☐4 ☐5 ☐6 ☐7

• How many **hours** did you spend participating in organized sports during an average week?
☐0-1 ☐1-2 ☐2-3 ☐3-4 ☐4-5 ☐≥6

2. During a typical WEEK, how much time did you spend walking outside and/or riding your bike/scooter to get places? *(examples: riding your bike to school or your friend's house, walking to the store, etc.)*
☐ ≤1.5 minutes ☐30-60 minutes ☐1-2 hours
☐3-4 hours ☐5-6 hours ☐ ≥7 hours

3. During a typical week, how much time did you spend doing moderate physical activity?
Moderate physical activity makes you breathe a little faster, you can still talk, but you can't sing. Some examples are hiking, playing in the pool while swimming slowly, catch/throw games (like baseball or softball), dancing, or housework (like sweeping)
☐ ≤1 hour ☐1-2 hours ☐3-4 hours
☐5-6 hours ☐ ≥7 hours ☐ Did not do any

4. During a typical week, how much time did you spend doing vigorous physical activity?
Vigorous physical activity makes your heart beat a lot faster; you may sweat and notice you can only say a few words while doing the activity because you are out of breath. Some examples are running, swimming laps, tennis, riding your bike up big hills, playing tag, tennis.
☐ ≤1 hour ☐1-2 hours ☐3-4 hours
☐5-6 hours ☐ ≥7 hours ☐ Did not do any

Spring 2020
(DURING COVID-19 school closures)

1. Did you participate in organized sports?
(examples: soccer, swim team, running club)
☐ Yes | ☐ No
IF YES:
• Please list the organized sports you participated in:

• How many days per week did you participate in organized sports?
☐1 ☐2 ☐3 ☐4 ☐5 ☐6 ☐7

• How many **hours** did you spend participating in organized sports during an average week?
☐0-1 ☐1-2 ☐2-3 ☐3-4 ☐4-5 ☐≥6

2. During a typical WEEK, how much time did you spend walking outside and/or riding your bike/scooter to get places? *(examples: riding your bike to school or your friend's house, walking to the store, etc.)*
☐ ≤1.5 minutes ☐30-60 minutes ☐1-2 hours
☐3-4 hours ☐5-6 hours ☐ ≥7 hours

3. During a typical week, how much time did you spend doing moderate physical activity?
Moderate physical activity makes you breathe a little faster, you can still talk, but you can't sing. Some examples are hiking, playing in the pool while swimming slowly, catch/throw games (like baseball or softball), dancing, or housework (like sweeping)
☐ ≤1 hour ☐1-2 hours ☐3-4 hours
☐5-6 hours ☐ ≥7 hours ☐ Did not do any

4. During a typical week, how much time did you spend doing vigorous physical activity?
Vigorous physical activity makes your heart beat a lot faster; you may sweat and notice you can only say a few words while doing the activity because you are out of breath. Some examples are running, swimming laps, tennis, riding your bike up big hills, playing tag, tennis.
☐ ≤1 hour ☐1-2 hours ☐3-4 hours
☐5-6 hours ☐ ≥7 hours ☐ Did not do any

In The Last 7 Days. . .

1. Did you participate in organized sports?
(examples: soccer, swim team, running club)
☐ Yes | ☐ No
IF YES:
• Please list the organized sports you participated in:

• How many days did you participate in organized sports?
☐1 ☐2 ☐3 ☐4 ☐5 ☐6 ☐7

• How many **hours** in the last **7 days** did you spend participating in organized sports?
☐0-1 ☐1-2 ☐2-3 ☐3-4 ☐4-5 ☐≥6

2. During the last 7 days, how much time did you spend walking outside and/or riding your bike/scooter to get places? *(examples: riding your bike to school or your friend's house, walking to the store, etc.)*
☐ ≤1.5 minutes ☐30-60 minutes ☐1-2 hours
☐3-4 hours ☐5-6 hours ☐ ≥7 hours

3. During the last 7 days, how much time did you spend doing moderate physical activity?
Moderate physical activity makes you breathe a little faster, you can still talk, but you can't sing. Some examples are hiking, playing in the pool while swimming slowly, catch/throw games (like baseball or softball), dancing, or housework (like sweeping)
☐ ≤1 hour ☐1-2 hours ☐3-4 hours
☐5-6 hours ☐ ≥7 hours ☐ Did not do any

4. During the last 7 days, how much time did you spend doing vigorous physical activity?
Vigorous physical activity makes your heart beat a lot faster; you may sweat and notice you can only say a few words while doing the activity because you are out of breath. Some examples are running, swimming laps, tennis, riding your bike up big hills, playing tag, tennis.
☐ ≤1 hour ☐1-2 hours ☐3-4 hours
☐5-6 hours ☐ ≥7 hours ☐ Did not do any

5. What do you think of your physical activity levels now compared to before the COVID-19 pandemic?
☐ Decreased a lot
☐ Decreased a little
☐ No change
☐ Increased a little
☐ Increased a lot
☐ Don't know

6. Are you and your family doing any new/different things to exercise? *(examples: more family walks, virtual/online workout classes)*
☐ Yes | ☐ No
IF YES:
• Please list the activities:

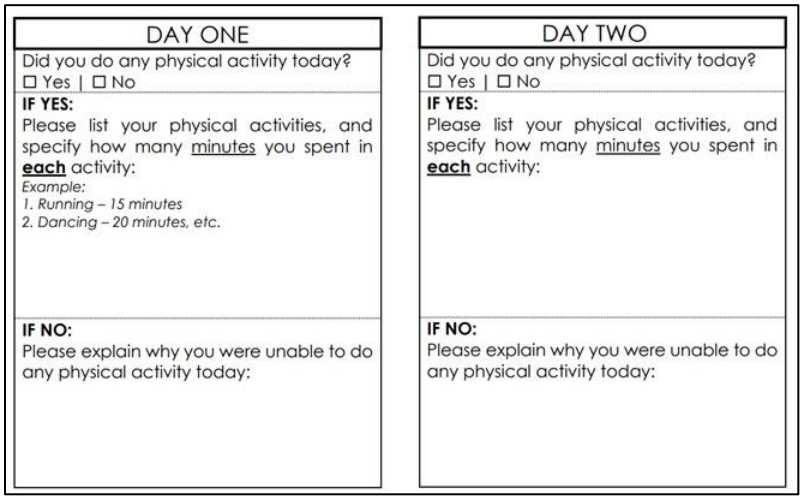
7. How much interest do you have in increasing your level of physical activity?
☐ Very interested
☐ Somewhat interested
☐ Neutral
☐ Uninterested
☐ Very uninterested

8. Are you interested in learning more about physical activity?
☐ Yes | ☐ No

Note. This is a small image of the self-report instrument created for use in this evidence-based project. Please see Appendix A for a larger version. The questionnaire compares activity levels pre-pandemic (summer/fall 2019), after the initial lockdown in San Diego, California (spring 2020), and the last seven days (fall 2020). This instrument has not been psychometrically validated but was helpful in facilitating discussion with participants about PA.

Figure 2

Excerpt of Exercise Journal

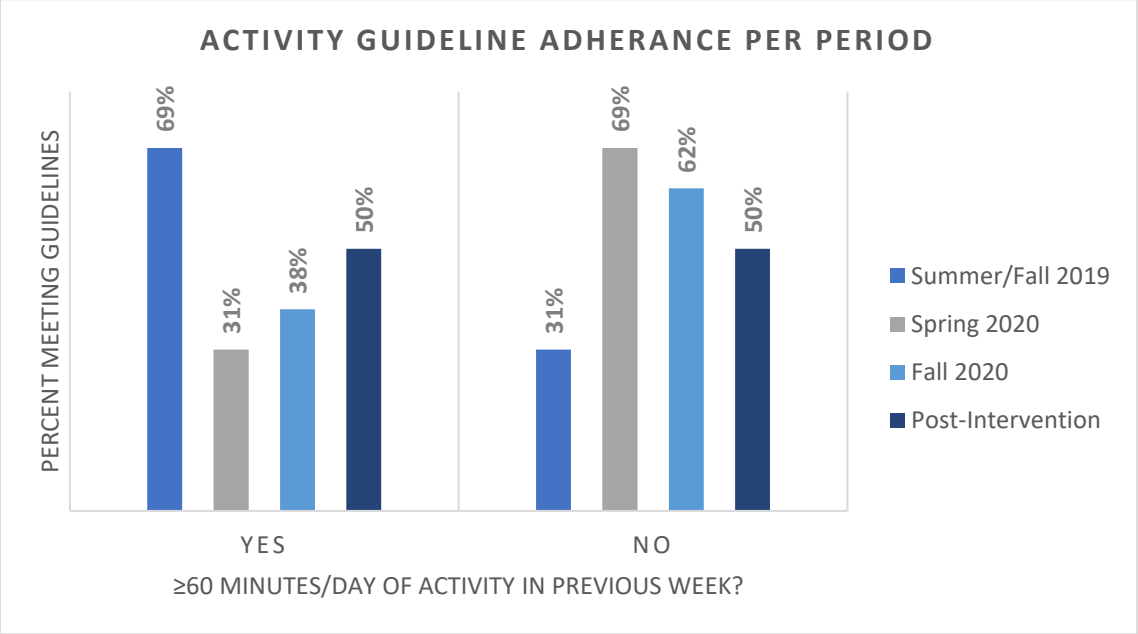


DAY ONE	DAY TWO
Did you do any physical activity today? ☐ Yes | ☐ No	Did you do any physical activity today? ☐ Yes | ☐ No
IF YES: Please list your physical activities, and specify how many minutes you spent in **each** activity: *Example:* *1. Running – 15 minutes* *2. Dancing – 20 minutes, etc.*	**IF YES:** Please list your physical activities, and specify how many minutes you spent in **each** activity:
IF NO: Please explain why you were unable to do any physical activity today:	**IF NO:** Please explain why you were unable to do any physical activity today:

Note. This is a portion of the exercise journal given to participants to track daily activity for one week. The full exercise journal given to participants included seven days, and additional follow-up questions. Please see Appendix A for the full journal.

Figure 3

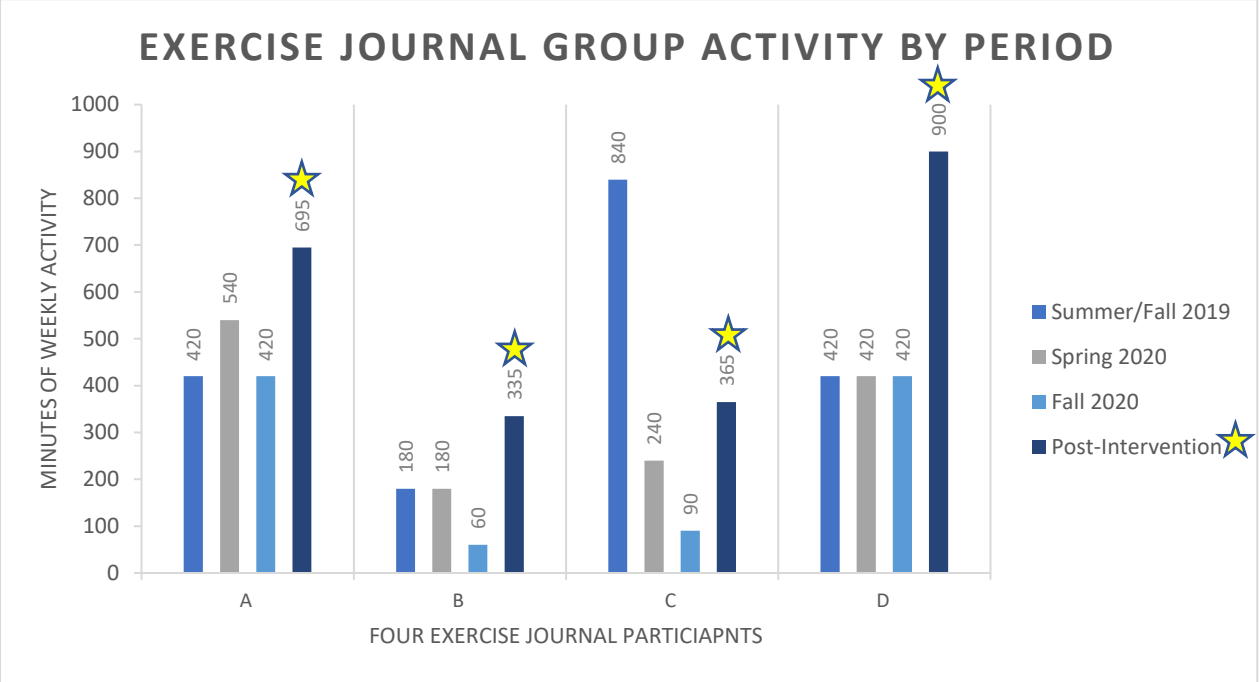
Participants Meeting Activity Guidelines by Period



Note. This figure shows the percentage of participants achieving 60 minutes of daily activity over one week pre-pandemic, spring 2020, fall 2020, and during completion of the exercise journal. 69% of participants met guidelines pre-pandemic, which exceeds national averages. PA started to increase after the pandemic by fall 2020 and while using the exercise journal, but not back to pre-pandemic levels.

Figure 4

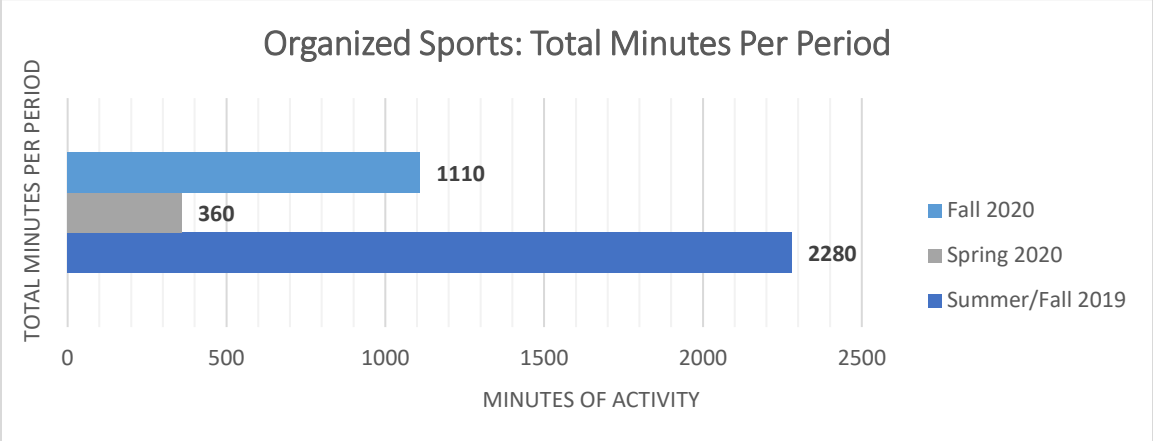
Exercise Journal Group Minutes of Weekly Activity by Period



Note. This figure shows minutes of weekly activity for the four participants that returned an exercise journal. The star emphasizes minutes of weekly activity in each participant during the week they recorded activity in the journal. Activity increased in all participants from the previous period (fall 2020). Three out of four participants increased activity to levels higher than pre-pandemic.

Figure 5

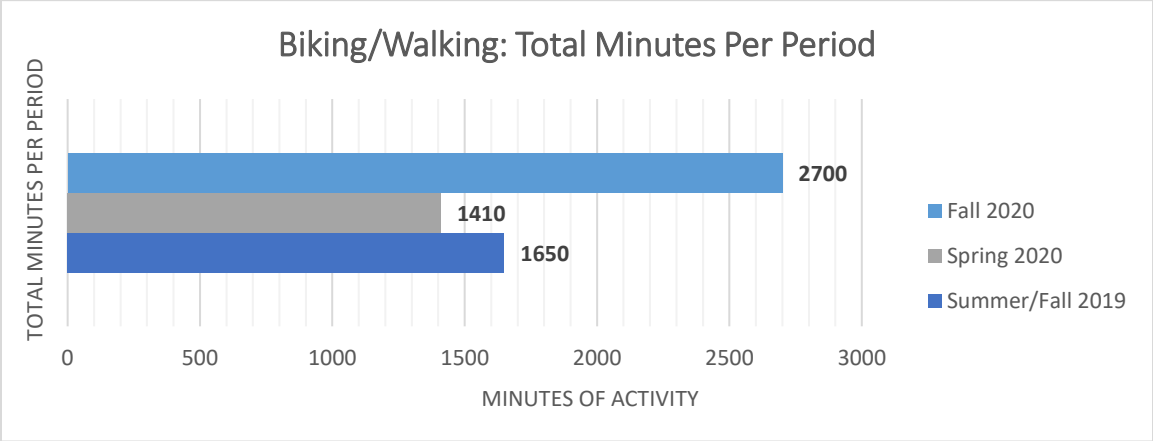
Total of All Participants' Weekly Activity in Organized Sports



Note. The numbers depicted in this figure represent the combined total of every participants' weekly activity in organized sports per period. There was a large decreased in organized sports due to the COVID-19 pandemic.

Figure 6

Total of All Participants' Weekly Activity Biking/Walking



Note. The numbers depicted in this figure represent the combined total of every participants' weekly activity biking/walking per period. Biking/walking increased by fall 2020, replacing activity from organized sports in this period.

Appendix A

EBP Project Materials

Self-Report Instrument

Summer/Fall 2019 (before the COVID-19 Pandemic)	Spring 2020 (DURING COVID-19 school closures)
1. Did you participate in organized sports? *(examples: soccer, swim team, running club)* ☐ Yes | ☐ No	1. Did you participate in organized sports? *(examples: soccer, swim team, running club)* ☐ Yes | ☐ No
IF YES: • Please list the organized sports you participated in: • How many <u>days</u> per <u>week</u> did you participate in organized sports? ☐1 ☐2 ☐3 ☐4 ☐5 ☐6 ☐7 • How many **<u>hours</u>** did you spend participating in organized sports during an average <u>week</u>? ☐0-1 ☐1-2 ☐2-3 ☐3-4 ☐4-5 ☐ ≥6	**IF YES:** • Please list the organized sports you participated in: • How many <u>days</u> per <u>week</u> did you participate in organized sports? ☐1 ☐2 ☐3 ☐4 ☐5 ☐6 ☐7 • How many **<u>hours</u>** did you spend participating in organized sports during an average <u>week</u>? ☐0-1 ☐1-2 ☐2-3 ☐3-4 ☐4-5 ☐ ≥6
2. During a typical WEEK, how much time did you spend walking outside and/or riding your bike/scooter to get places? *(examples: riding your bike to school or your friend's house, walking to the store, etc.)* ☐ ≤15 minutes ☐30-60 minutes ☐1-2 hours ☐3-4 hours ☐5-6 hours ☐ ≥7 hours	2. During a typical WEEK, how much time did you spend walking outside and/or riding your bike/scooter to get places? *(examples: riding your bike to school or your friend's house, walking to the store, etc.)* ☐ ≤15 minutes ☐30-60 minutes ☐1-2 hours ☐3-4 hours ☐5-6 hours ☐ ≥7 hours
3. During a typical *week*, how much time did you spend doing moderate physical activity? *Moderate physical activity makes you breathe a little faster, you can still talk, but you can't sing. Some examples are hiking, playing in the pool while swimming slowly, catch/throw games (like baseball or softball), dancing, or housework (like sweeping)* ☐ ≤1 hour ☐1-2 hours ☐3-4 hours ☐5-6 hours ☐ ≥7 hours ☐ Did not do any	3. During a typical *week*, how much time did you spend doing moderate physical activity? *Moderate physical activity makes you breathe a little faster, you can still talk, but you can't sing. Some examples are hiking, playing in the pool while swimming slowly, catch/throw games (like baseball or softball), dancing, or housework (like sweeping)* ☐ ≤1 hour ☐1-2 hours ☐3-4 hours ☐5-6 hours ☐ ≥7 hours ☐ Did not do any
4. During a typical week, how much time did you spend doing vigorous physical activity? *Vigorous physical activity makes your heart beat a lot faster; you may sweat and notice you can only say a few words while doing the activity because you are out of breath. Some examples are running, swimming laps, tennis, riding your bike up big hills, playing tag, tennis.* ☐ ≤1 hour ☐1-2 hours ☐3-4 hours ☐5-6 hours ☐ ≥7 hours ☐ Did not do any	4. During a typical week, how much time did you spend doing vigorous physical activity? *Vigorous physical activity makes your heart beat a lot faster; you may sweat and notice you can only say a few words while doing the activity because you are out of breath. Some examples are running, swimming laps, tennis, riding your bike up big hills, playing tag, tennis.* ☐ ≤1 hour ☐1-2 hours ☐3-4 hours ☐5-6 hours ☐ ≥7 hours ☐ Did not do any

In The Last 7 Days. . .

1. Did you participate in organized sports? *(examples: soccer, swim team, running club)*
☐ Yes | ☐ No

IF YES:

• Please list the organized sports you participated in:

• How many <u>days</u> did you participate in organized sports?
☐1 ☐2 ☐3 ☐4 ☐5 ☐6 ☐7

• How many **<u>hours</u>** in the last **<u>7 days</u>** did you spend participating in organized sports?
☐0-1 ☐1-2 ☐2-3 ☐3-4 ☐4-5 ☐ ≥6

2. During the last 7 days, how much time did you spend walking outside and/or riding your bike/scooter to get places? *(examples: riding your bike to school or your friend's house, walking to the store, etc.)*

☐ ≤15 minutes ☐30-60 minutes ☐1-2 hours
☐3-4 hours ☐5-6 hours ☐ ≥7 hours

3. During the last 7 days, how much time did you spend doing moderate physical activity? *Moderate physical activity makes you breathe a little faster, you can still talk, but you can't sing. Some examples are hiking, playing in the pool while swimming slowly, catch/throw games (like baseball or softball), dancing, or housework (like sweeping)*

☐ ≤1 hour ☐1-2 hours ☐3-4 hours
☐5-6 hours ☐ ≥7 hours ☐ Did not do any

4. During the last 7 days, how much time did you spend doing vigorous physical activity? *Vigorous physical activity makes your heart beat a lot faster; you may sweat and notice you can only say a few words while doing the activity because you are out of breath. Some examples are running, swimming laps, tennis, riding your bike up big hills, playing tag, tennis.*

☐ ≤1 hour ☐1-2 hours ☐3-4 hours
☐5-6 hours ☐ ≥7 hours ☐ Did not do any

5. What do you think of your physical activity levels now compared to before the COVID-19 pandemic?

☐ Decreased a lot
☐ Decreased a little
☐ No change
☐ Increased a little
☐ Increased a lot
☐ Don't know

6. Are you and your family doing any new/different things to exercise? *(examples: more family walks, virtual/online workout classes)*
☐ Yes | ☐ No

IF YES:

• Please list the activities:

7. How much interest do you have in increasing your level of physical activity?

☐ Very interested
☐ Somewhat interested
☐ Neutral
☐ Uninterested
☐ Very uninterested

8. Are you interested in learning more about physical activity?
☐ Yes | ☐ No

Exercise Journal

DAY ONE
Did you do any physical activity today? ☐ Yes | ☐ No
IF YES: Please list your physical activities, and specify how many minutes you spent in **each** activity: *Example:* *1. Running – 15 minutes* *2. Dancing – 20 minutes, etc.*
IF NO: Please explain why you were unable to do any physical activity today:

DAY TWO
Did you do any physical activity today? ☐ Yes | ☐ No
IF YES: Please list your physical activities, and specify how many minutes you spent in **each** activity:
IF NO: Please explain why you were unable to do any physical activity today:

DAY THREE
Did you do any physical activity today? ☐ Yes | ☐ No
IF YES: Please list your physical activities, and specify how many minutes you spent in **each** activity:
IF NO: Please explain why you were unable to do any physical activity today:

DAY FOUR
Did you do any physical activity today? ☐ Yes | ☐ No
IF YES: Please list your physical activities, and specify how many minutes you spent in **each** activity:
IF NO: Please explain why you were unable to do any physical activity today:

DAY FIVE
Did you do any physical activity today? ☐ Yes | ☐ No
IF YES: Please list your physical activities, and specify how many minutes you spent in **each** activity:
IF NO: Please explain why you were unable to do any physical activity today:

DAY SIX
Did you do any physical activity today? ☐ Yes | ☐ No
IF YES: Please list your physical activities, and specify how many minutes you spent in **each** activity:
IF NO: Please explain why you were unable to do any physical activity today:

DAY SEVEN
Did you do any physical activity today? ☐ Yes | ☐ No
IF YES: Please list your physical activities, and specify how many minutes you spent in **each** activity:
IF NO: Please explain why you were unable to do any physical activity today:

1. Have you and your family done any new/different things to exercise?
   ☐ Yes | ☐ No

   • **IF YES**, please list the activities:

2. How much do you think your level of physical activity changed since our discussion?
   a. Decreased a lot
   b. Decreased a little
   c. No change
   d. Increased a little
   e. Increased a lot

3. How much do you think keeping an exercise journal helped motivate you to increase your physical activity?
   a. Did not help
   b. Neutral
   c. Helped a little
   d. Helped a lot

4. Did this project teach you any new things about physical activity?
   ☐ Yes | ☐ No

   • **IF YES**, please describe what you learned: